Inventor(s): Shenggao Liu et al. Application Serial No. 10/764,407

SHEET 1 of 26

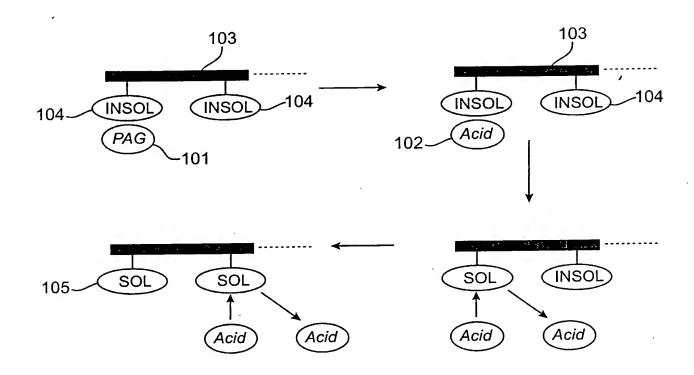


FIG. 1

APPLN. FILING DATE: JANUARY 23, 2004
TITLE: PHOTORESIST COMPOSITIONS
COMPRISING DIAMONDOID DERIVATIVES
INVENTOR(S): SHENGGAO LIU ET AL.

APPLICATION SERIAL No. 10/764,407 **SHEET 2 of 26**

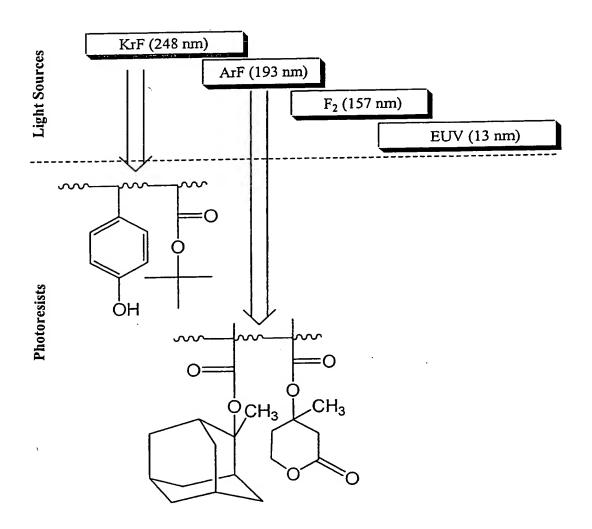
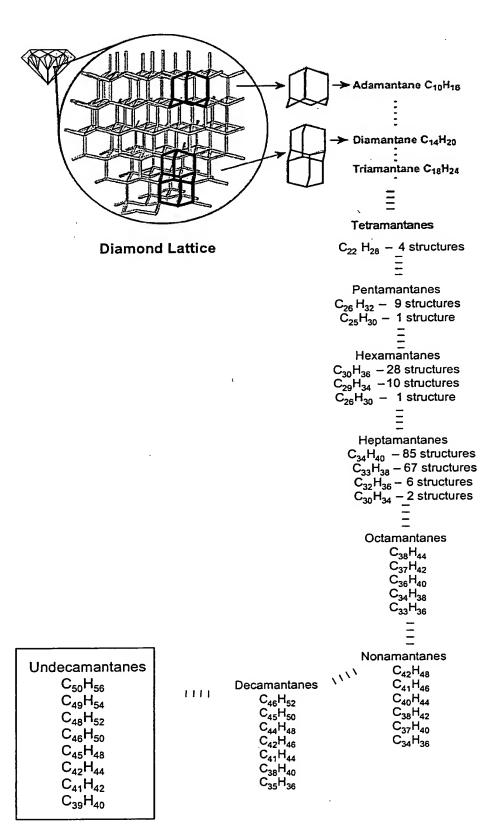


FIG. 2

INVENTOR(S): SHENGGAO LIU ET AL.

APPLICATION SERIAL NO. 10/764,407 SHEET 3 of 26



Inventor(s): Shenggao Liu et al.

APPLICATION SERIAL NO. 10/764,407 SHEET 4 of 26

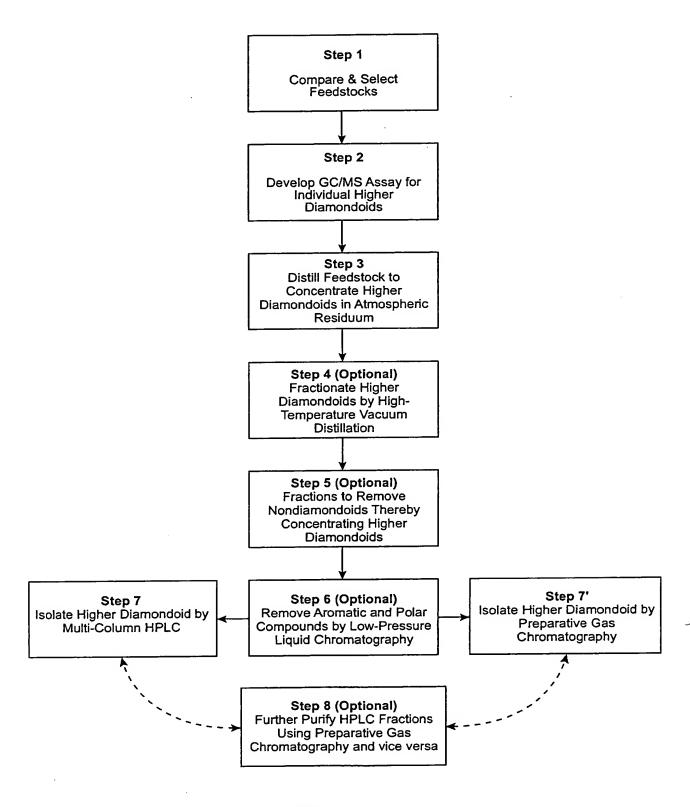


FIG. 4

INVENTOR(S): SHENGGAO LIU ET AL.

APPLICATION SERIAL No. 10/764,407 SHEET 5 of 26

5/26

FIG. 5A

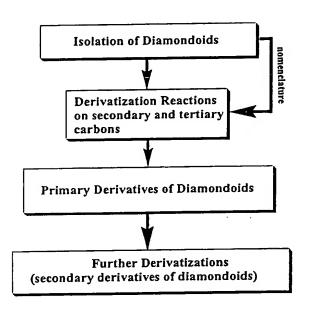
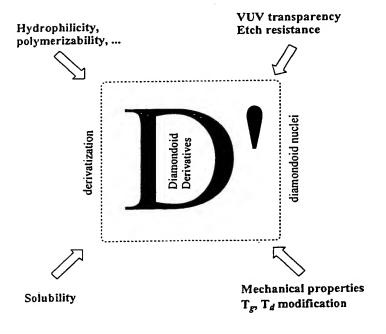


FIG. 5B



INVENTOR(S): SHENGGAO LIU ET AL.

SHEET 6 of 26 APPLICATION SERIAL No. 10/764,407

6/26

FIG. 6

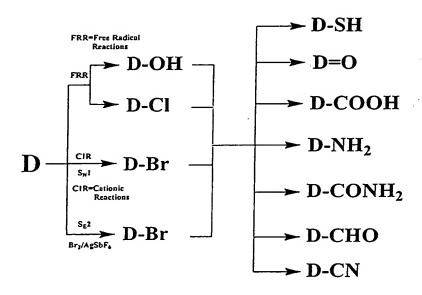
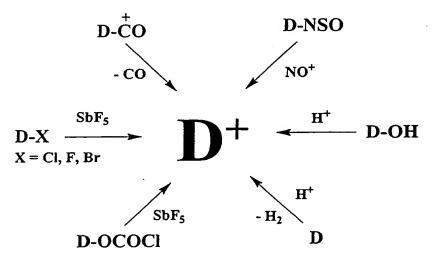


FIG. 7

Representative Ways of Generation of Diamondoid Cations (D⁺)



APPLN. FILING DATE: JANUARY 23, 2004
TITLE: PHOTORESIST COMPOSITIONS
COMPRISING DIAMONDOID DERIVATIVES
INVENTOR(S): SHENGGAO LIU ET AL.
APPLICATION SERIAL NO. 10/764,407 SHEET 7 of 26

7/26

FIG. 8

Representative $S_N 1$ Reactions of Diamondoid Carbocations

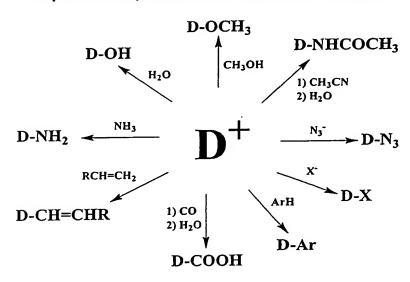


FIG. 9

Representative $S_E 2$ Reactions of Diamondoids

D-OH
$$\begin{array}{c|c}
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\
 & & \\$$

INVENTOR(S): SHENGGAO LIU ET AL.

APPLICATION SERIAL NO. 10/764,407 SHEET 8 of 26

8/26

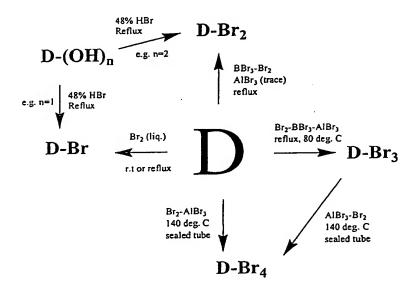
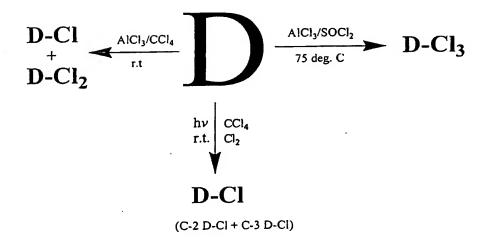


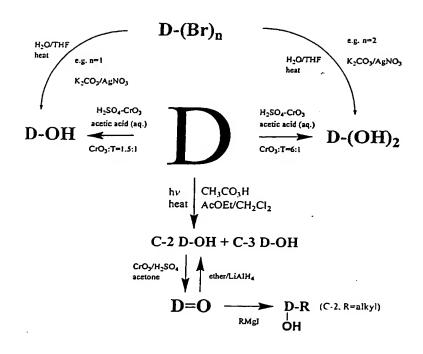
FIG. 11

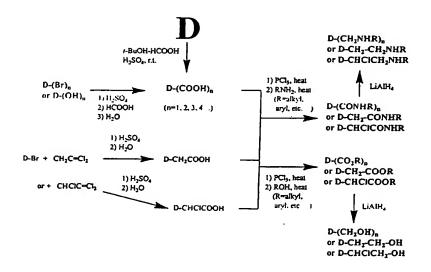


INVENTOR(S): SHENGGAO LIU ET AL.
APPLICATION SERIAL NO. 10/764,407 SHEET 9 of 26

9/26

FIG. 12





INVENTOR(S): SHENGGAO LIU ET AL.

APPLICATION SERIAL NO. 10/764,407 SHEET 10 of 26

FIG. 14

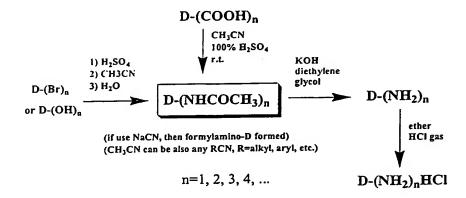
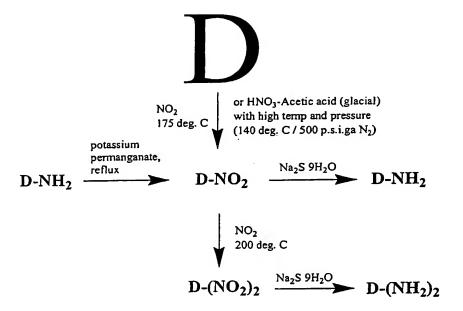


FIG. 15

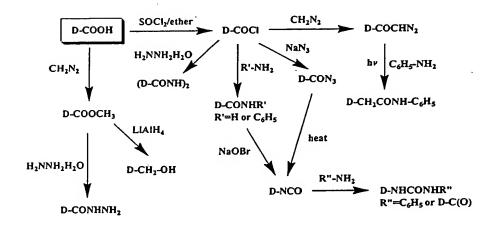


INVENTOR(S): SHENGGAO LIU ET AL.

APPLICATION SERIAL NO. 10/764,407 SHEET 11 of 26

11/26

FIG. 16



INVENTOR(S): SHENGGAO LIU ET AL.
APPLICATION SERIAL NO. 10/764,407 SHEET 12 of 26

12/26

FIG. 18

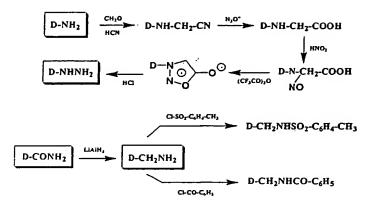
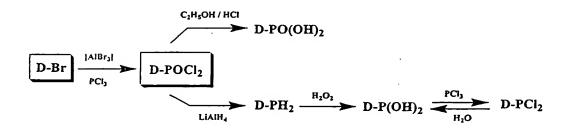
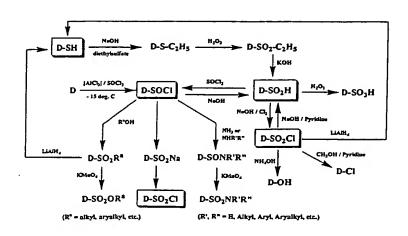


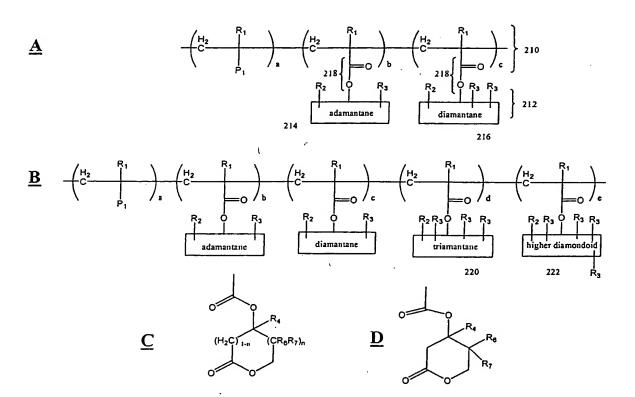
FIG. 19





APPLN. FILING DATE: JANUARY 23, 2004
TITLE: PHOTORESIST COMPOSITIONS
COMPRISING DIAMONDOID DERIVATIVES
INVENTOR(s): SHENGGAO LIU ET AL.
APPLICATION SERIAL NO. 10/764,407 SHEET 13 of 26

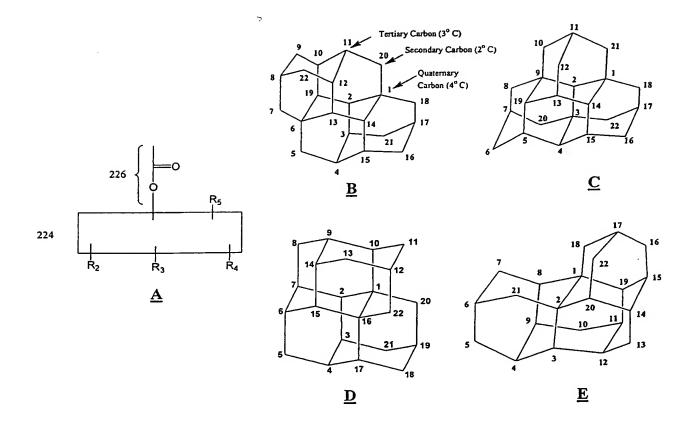
13/26



APPLN. FILING DATE: JANUARY 23, 2004
TITLE: PHOTORESIST COMPOSITIONS
COMPRISING DIAMONDOID DERIVATIVES
INVENTOR(s), SUENIGA & J. W. ET AL.

INVENTOR(S): SHENGGAO LIU ET AL.
APPLICATION SERIAL NO. 10/764,407 SHEET 14 of 26

FIG. 22



APPLN. FILING DATE: JANUARY 23, 2004 TITLE: PHOTORESIST COMPOSITIONS COMPRISING DIAMONDOID DERIVATIVES Inventor(s): Shenggao Liu et al.

APPLICATION SERIAL No. 10/764,407 **SHEET 15 of 26**

15/26

APPLN. FILING DATE: JANUARY 23, 2004
TITLE: PHOTORESIST COMPOSITIONS
COMPRISING DIAMONDOID DERIVATIVES
INVENTOR(S): SHENGGAO LIU ET AL.
APPLICATION SERIAL NO. 10/764,407 SHEET 16 of 26

16/26

APPLN. FILING DATE: JANUARY 23, 2004
TITLE: PHOTORESIST COMPOSITIONS
COMPRISING DIAMONDOID DERIVATIVES
INVENTOR(S): SHENGGAO LIU ET AL.
APPLICATION SERIAL NO. 10/764,407 SHEET 17 of 26

FIG. 25

$$\underline{\mathbf{A}}$$

$$\begin{pmatrix} \mathbf{C} & \mathbf{R}_1 \\ \mathbf{H}_2 & \mathbf{R}_1 \\ \mathbf{R}_3 & \mathbf{C} \\ \mathbf{H}_2 & \mathbf{R}_3 \end{pmatrix} \begin{pmatrix} \mathbf{C} \\ \mathbf{H}_3 \\ \mathbf{H}_2 & \mathbf{C} \\ \mathbf{C} \\ \mathbf{H}_2 & \mathbf{C} \end{pmatrix} \begin{pmatrix} \mathbf{C} \\ \mathbf{H}_2 & \mathbf{C} \\ \mathbf{H}_2 & \mathbf{C} \\ \mathbf{C} \\ \mathbf{H}_2 & \mathbf{C} \end{pmatrix} \begin{pmatrix} \mathbf{C} \\ \mathbf{H}_2 & \mathbf{C} \\ \mathbf{C} \\ \mathbf{C} \\ \mathbf{C} \\ \mathbf{C} \\ \mathbf{C} \\ \mathbf{C} \end{pmatrix} \begin{pmatrix} \mathbf{C} \\ \mathbf{H}_2 & \mathbf{C} \\ \mathbf{C} \\ \mathbf{C} \\ \mathbf{C} \\ \mathbf{C} \end{pmatrix} \begin{pmatrix} \mathbf{C} \\ \mathbf{C} \\ \mathbf{C} \\ \mathbf{C} \\ \mathbf{C} \\ \mathbf{C} \\ \mathbf{C} \end{pmatrix} \begin{pmatrix} \mathbf{C} \\ \mathbf{C} \\ \mathbf{C} \\ \mathbf{C} \\ \mathbf{C} \\ \mathbf{C} \\ \mathbf{C} \end{pmatrix} \begin{pmatrix} \mathbf{C} \\ \mathbf{C} \end{pmatrix} \begin{pmatrix} \mathbf{C} \\ \mathbf{C} \\$$

APPLN. FILING DATE: JANUARY 23, 2004
TITLE: PHOTORESIST COMPOSITIONS
COMPRISING DIAMONDOID DERIVATIVES
INVENTOR(S): SHENGGAO LIU ET AL.
APPLICATION SERIAL NO. 10/764,407 SHEET

Substrate~

SHEET 18 of 26

FIG. 26

$$H_2C = CH_3$$
 $H_2C = CH_3$
 $H_3C = CH_3$

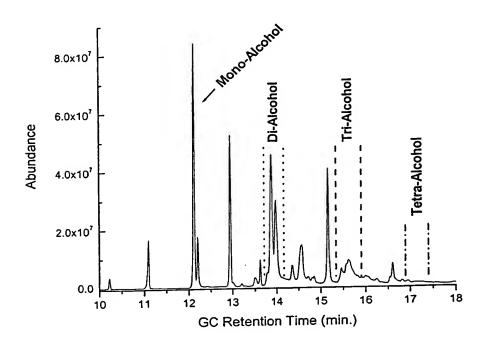
INVENTOR(S): SHENGGAO LIU ET AL.

APPLICATION SERIAL No. 10/764,407 SHEET 19 of 26

FIG. 27

APPLN. FILING DATE: JANUARY 23, 2004
TITLE: PHOTORESIST COMPOSITIONS
COMPRISING DIAMONDOID DERIVATIVES
INVENTOR(S): SHENGGAO LIU ET AL.
APPLICATION SERIAL NO. 10/764,407 SHEET 20 of 26

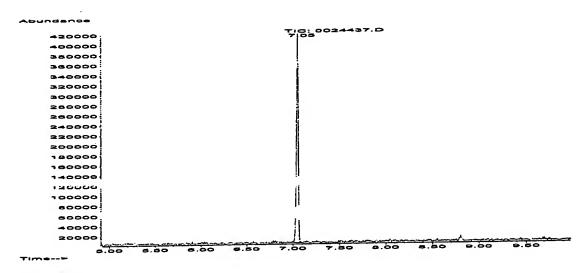
FIG. 28

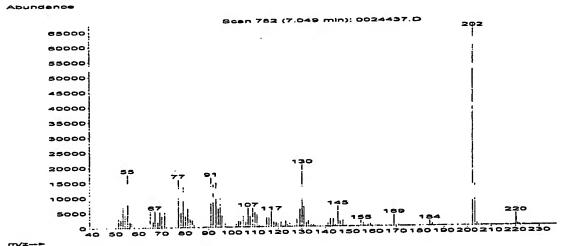


INVENTOR(S): SHENGGAO LIU ET AL.

APPLICATION SERIAL NO. 10/764,407 SHEET 21 of 26

FIG. 29

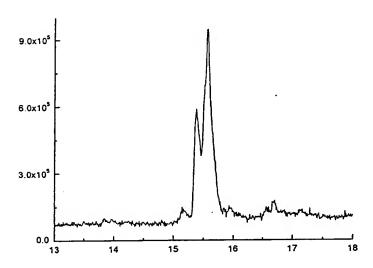


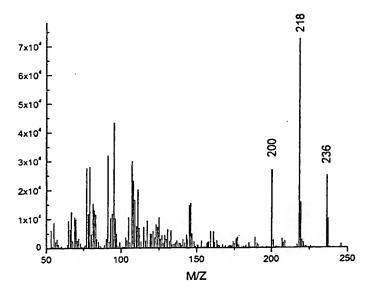


TAPPLING DATE: JANUARY 23, 2004
TITLE: PHOTORESIST COMPOSITIONS
COMPRISING DIAMONDOID DERIVATIVES
INVENTOR(s): SHENGGAO LIU ET AL.
APPLICATION SERIAL NO. 10/764,407 SHEET 22 of 26

22/26

FIG. 30

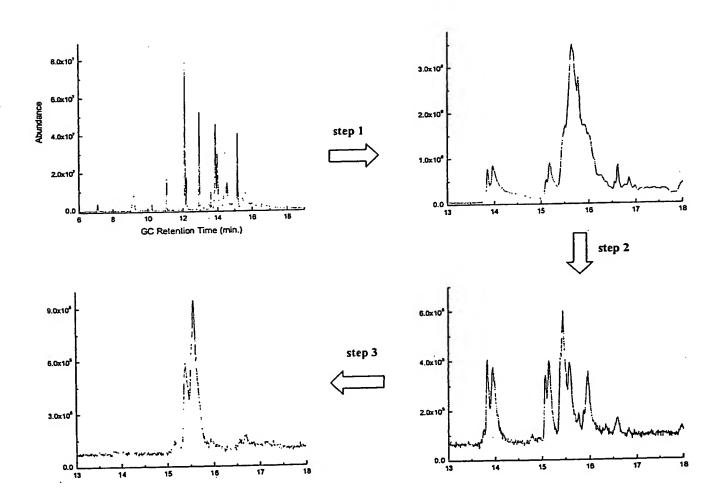




APPLN. FILING DATE: JANUARY 23, 2004
TITLE: PHOTORESIST COMPOSITIONS
COMPRISING DIAMONDOID DERIVATIVES
INVENTOR(S): SHENGGAO LIU ET AL.

APPLICATION SERIAL No. 10/764,407 **SHEET 23 of 26**

FIG. 31

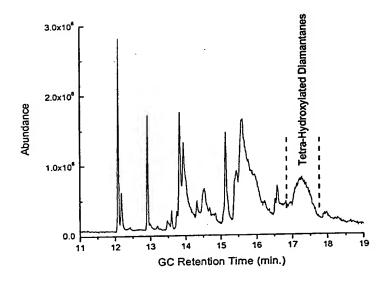


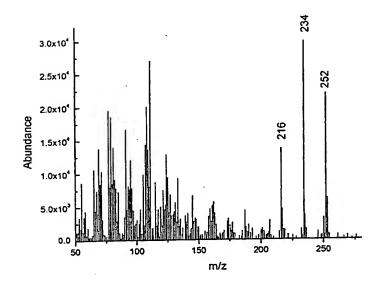
APPLN. FILING DATE: JANUARY 23, 2004
TITLE: PHOTORESIST COMPOSITIONS
COMPRISING DIAMONDOID DERIVATIVES Inventor(s): Shenggao Liu et al. Application Serial No. 10/764,407

SHEET 24 of 26

24/26

FIG. 32





APPLN. FILING DATE: JANUARY 23, 2004
TITLE: PHOTORESIST COMPOSITIONS
COMPRISING DIAMONDOID DERIVATIVES
INVENTOR(S): SHENGGAO LIU ET AL.
APPLICATION SERIAL NO. 10/764,407 SHEET 25 of 26

FIG. 33A

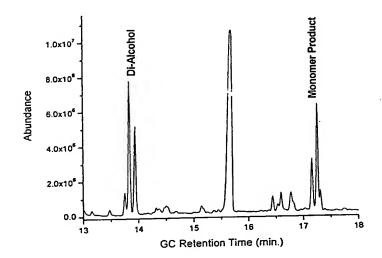
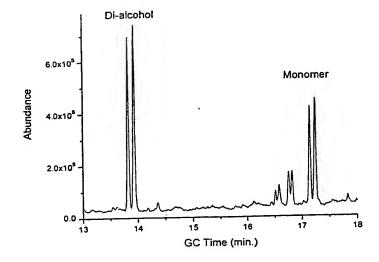


FIG. 33B



APPLN. FILING DATE: JANUARY 23, 2004
TITLE: PHOTORESIST COMPOSITIONS
COMPRISING DIAMONDOID DERIVATIVES
INVENTOR(S): SHENGGAO LIU ET AL.

APPLICATION SERIAL No. 10/764,407 SHEET 26 of 26

FIG. 34

